

Inequity in Healthcare Access in Asian Countries with Reportedly High Universal Health Coverage Levels

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Objective

- To investigate inequity in utilisation of inpatient and outpatient healthcare under universal health coverage schemes in Asian countries with reportedly high levels of coverage.

Background

- Universal health coverage (UHC), as defined by the World Health Organization, aims to provide access to healthcare for all citizens without imposing financial burden. It is recognised as an important policy to fight poverty and inequality.¹
- Horizontal equity (equal treatment of individuals with equivalent needs) and vertical equity (more healthcare for people with greater needs) are recognised as vitally important components of UHC.²⁻⁴
- This investigation focussed on horizontal inequity in the utilisation of healthcare using a standardised empirical measure: the concentration index (CI), which represents the relationship between socioeconomic status and health variables (e.g. inpatient care utilisation). CIs range from -1 to 1. A CI>0 indicates that the health variable is disproportionately concentrated on the rich, and a CI<0 indicates that the variable is disproportionately concentrated on the poor. A CI=0 indicates perfect equality.⁵
- This study aimed to identify empirical measures of inequity in healthcare in Asian countries with high UHC and investigate relationships between inequity measures, level of UHC, government expenditure on health (GEH) and total expenditure on health (THE).

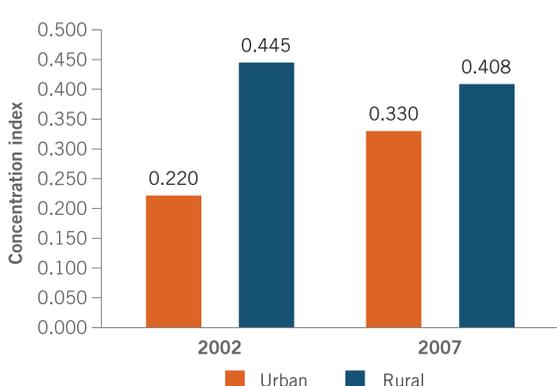
Methods

- A pragmatic literature review, consisting of targeted searches in Google and Google Scholar using search terms for 'health', 'healthcare', 'equity' and 'Asia', and in PubMed using a combination of terms for 'health' and 'concentration index', was carried out on 22nd November 2016. The searches aimed to identify studies using empirical measures, including the CI or horizontal inequity index, to investigate inequity in relation to inpatient and/or outpatient healthcare in Brunei, China, Japan, Singapore, South Korea, Taiwan and Thailand.
- Eligible data sources included peer-reviewed journal publications, reports and healthcare statistics databases. All records were screened by a single reviewer.
- From all relevant records, the result of any empirical measure of inequity in relation to healthcare was extracted into a pre-specified extraction grid in Microsoft Excel.
- GEH and THE for each country were extracted from an online database.⁷ All monetary values were extracted per capita in International dollars (Int. \$) converted using 2005 purchasing power parity (PPP) rates.⁷ The levels of UHC for each country were extracted from a previous investigation.⁶
- The Pearson correlation co-efficient was calculated to estimate the correlation between CI and UHC after the implementation of the scheme in each country. Correlations between CI and GEH and between CI and THE over time were calculated. Regression modelling was then performed. Mixed effect models with random intercepts for each country were used to account for the clustering of data. Log-likelihood ratio tests were constructed to compare models, with the significance value set at 0.05.

Results

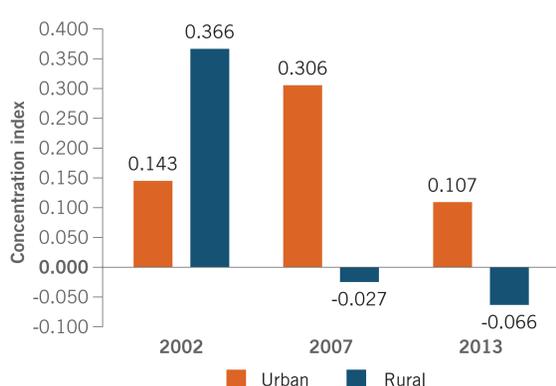
- Data were identified for China, Thailand, South Korea and Taiwan.
- In South Korea, CIs for inpatient and outpatient care were pro-poor after implementation of a single national health insurer in 2000 (for inpatient care: CI=-0.272 in 2005, -0.073 in 2007 and -0.112 in 2010; for outpatient care: CI=-0.144 in 2005, -0.114 in 2007 and -0.105 in 2010).^{8,9}
- In Thailand, inequity decreased as the CI for outpatient care increased, from -0.080 in 2001 to -0.040 in 2005, and the CI for inpatient care also increased from -0.130 to -0.090 between 2001 and 2005.¹⁰

Figure 1 | CIs for urban and rural inpatient care in China in 2002 and 2007



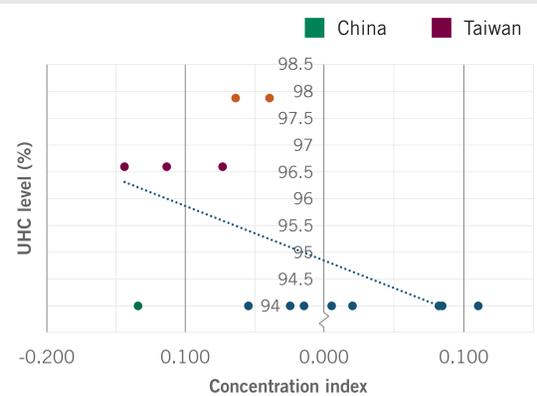
Data taken from Chen *et al.* 2015.¹⁴

Figure 2 | CIs for urban and rural outpatient care in China in 2002, 2007 and 2013



Data taken from Chen *et al.* 2015 and Chen *et al.* 2016.^{14,15}

Figure 3 | CI for outpatient care against % UHC coverage



Multiple data points for each country present all CIs identified following implementation of UHC in each country. Associations are represented by trendlines.

Figure 4 | CI for inpatient care against % UHC coverage

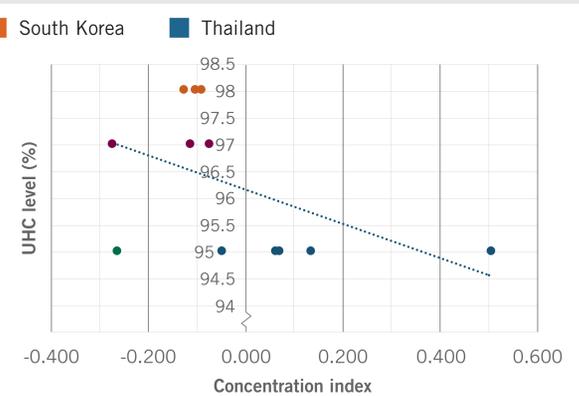
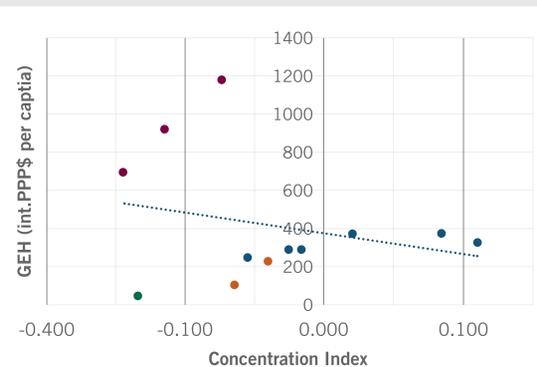
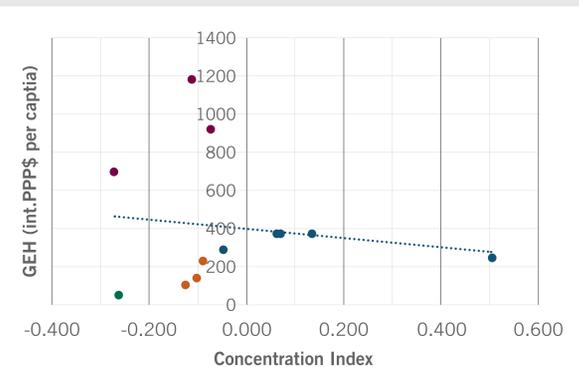


Figure 5 | CI for outpatient care against GEH



Multiple data points for each country present all CIs identified following implementation of UHC in each country. GEH varies within country due to different levels of expenditure over time, following the implementation of UHC. Associations are represented by trendlines.

Figure 6 | CI for inpatient care against GEH



- Data for Taiwan after the implementation of the UHC scheme in 1995 showed a pro-poor inpatient CI of -0.134 and outpatient CI of -0.261 in 2011.¹¹
- In China, healthcare was generally concentrated on the rich, and the CIs for outpatient and inpatient care both increased slightly after implementation of UHC began in 2002, suggesting an increase in inequity (outpatient CI increased from 0.049 in 1993 to 0.085 in 2013; inpatient CI increased from 0.053 in 1993 to 0.136 in 2013).^{12,13}
- Data for urban versus rural areas were available for Thailand and China. In Thailand, there was a marginally less negative pro-poor CI (-0.014) for inpatient care in urban areas than in rural areas (-0.040).
- In China, inequity in inpatient care remained pro-rich in both urban and rural areas after 2002 (Figure 1). Pro-rich inequity in outpatient care reduced substantially more in rural areas after the introduction of UHC than inequity in inpatient care (Figure 2).
- CIs for outpatient and inpatient care were compared against the percentage level of UHC after implementation of UHC schemes (Figure 3 and Figure 4).
- The correlation coefficient between UHC and CI showed moderate negative associations for both outpatient (-0.468) and inpatient care (-0.481) suggesting that as UHC increases the focus of coverage shifts towards the poor, although regression modelling showed that this association was not statistically significant.
- Very similar associations were observed for the relationship between CI and GEH, and between CI and THE. Due to this similarity, the association between CI and GEH only is displayed in Figure 3 (outpatient care) and Figure 4 (inpatient care).
- The Pearson correlation coefficients showed weak negative associations between CI and GEH, and between CI and THE for both outpatient and inpatient care. For GEH, the coefficient was -0.251 for outpatient and -0.142 for inpatient care. For THE, the coefficient was -0.273 for outpatient care and -0.151 for inpatient care. These weak negative associations

could indicate that as GEH or THE increases, CI decreases, suggesting the healthcare utilisation becomes more equitable. However, these associations were not significant when regression modelling was conducted.

Limitations

- The equity measures identified in this review considered utilisation of healthcare as a proxy measure of access to healthcare. Proxy measures may not be an accurate representation of access due to cultural differences in healthcare seeking behaviours. These equity measures may also reflect a greater distribution of ill health in populations with pro-poor healthcare utilisation and vice versa. Furthermore, the use of population level data may not provide a true reflection of the level of UHC and inequity within these countries.
- Analyses of the relationship between variables were challenging due to scarce data and clustering of variables by country. Attempts to identify relationships were further hindered by the values for the UHC not varying by each country during the years that were captured by the data set. Additionally, the variation in the values for GEH and THE was very large between and within countries, which resulted in the lack of significant associations found between CI and these variables.

Conclusions

- China showed slightly pro-rich inequality in healthcare utilisation both before and after implementation of the UHC schemes, suggesting inequity despite a high level of UHC. This contrasts with Taiwan, Thailand and South Korea which all displayed pro-poor utilisation.
- Substantial differences in equity were observed between urban and rural areas in Thailand and China which indicated barriers to access to inpatient care in rural areas.
- Due to the limited sample size and clustering of data, more data for each country are needed to determine whether there is a significant relationship between the variables of interest in future analyses.
- UHC schemes should consider non-needs-based use of healthcare and increased access to inpatient care in rural areas in order to increase equitable use of healthcare services in countries with reportedly high levels of coverage.

References

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